

In the ovo-viviparous sharks, which are the subjects of the present communication, the ova being contained till hatched in the body of the fish, have no hard covering, and are surrounded by sea-water, which has admission into the oviduct, by an aperture for that purpose.

In the kangaroo, and others of the opossum tribe in New South Wales, there is a communication between the uterus and vagina, which answers the same purpose of aërating the foetal blood, which is necessary in these animals; because the young is not, as in others, connected with the uterus by a navel-string, but is detached as a sort of soft egg, and consequently cannot receive the influence of the arterial blood of the mother through the coats of any contiguous vessels.

*On Cystic Oxide, a new species of Urinary Calculus.* By William Hyde Wollaston, M.D. Sec. R.S. Read July 5, 1810. [*Phil. Trans.* 1810, p. 223.]

The calculus, which is the subject of the present essay, is the only new species which the author has had an opportunity of observing, in addition to five which he described to the Society in the year 1797.

It appears to be comparatively very rare, as he has hitherto seen only two specimens of it; one in the possession of Dr. Reeve of Norwich, and the other in a collection of calculi belonging to Guy's Hospital. They are in appearance more like the triple phosphate of magnesia than any other calculus, but are more compact and semi-transparent, with a slight tinge of yellow.

By destructive distillation they yield foetid carbonate of ammonia, with a heavy animal oil, and the residuum is a black spongy coal.

They are not dissolved by water, by alcohol, by acetic acid, by tartaric acid, but are dissolved by most other acids, by muriatic, nitric, sulphuric, phosphoric or oxalic acids.

They are dissolved also by most alkaline menstrua, as by solutions of pure potash or soda, pure ammonia, or by lime-water, and even by the fully saturated carbonates of potash or of soda, but not by carbonate of ammonia.

It is remarked also, that the solution formed with nitric acid does not yield oxalic acid, as the uric acid does when similarly treated, and does not turn red in drying, but becomes brown, and ultimately black, when much heated.

Since this substance yields carbonate of ammonia by distillation, it evidently contains oxygen, but it does not appear acid, as it does not redden litmus, but has rather the properties of an oxide, inasmuch as it unites readily with either acid or alkaline substances; and the author is induced to give it the name of cystic oxide, because the only calculi hitherto observed have been taken from the bladder.

The author takes this opportunity of correcting an inaccuracy or two in his former communication on this subject; and he also adds

some observations respecting the different quantities of uric acid voided by birds living upon different kinds of food, not being produced by those that live entirely upon fish.

*Researches on the oxymuriatic Acid, its Nature and Combinations ; and on the Elements of the muriatic Acid. With some Experiments on Sulphur and Phosphorus, made in the Laboratory of the Royal Institution* \*. By H. Davy, Esq. Sec. R.S. Prof. Chem. R.I. F.R.S.E. Read July 12, 1810. [*Phil. Trans.* 1810, p. 231.]

The tendency of the author in the present investigation, is to return to the opinion respecting the relation of muriatic acid and oxymuriatic acids to each other, which was originally entertained by Scheele.

According to that most illustrious chemist, the oxymuriatic was the more simple body, and by union with phlogiston became muriatic acid. But from many experiments made soon after by Berthollet, it was inferred that the latter was simple, and by union with oxygen became converted into oxymuriatic acid. In Mr. Davy's former attempts to obtain the base of muriatic acid by potassium, he has not been able to separate anything from it but hydrogen. In Dr. Henry's endeavours by electricity to decompose the muriatic acid, hydrogen and oxymuriatic acid were evolved ; and conversely, Mr. Davy has in no instance been able to separate oxygen from oxymuriatic acid, or even to separate muriatic acid from dry muriates, without the assistance of hydrogen or water. He has hence been led to doubt the existence of oxygen in the substance called oxymuriatic acid, and has applied the most powerful means of abstracting oxygen from it without success ; and indeed Messrs. Gay-Lussac and Thenard, in their elaborate and interesting experiments, published in the *Memoires d'Arcueil*, although they maintain that muriatic acid gas consists of muriatic acid and water, are not able to separate water from it, but only hydrogen ; and themselves acknowledge that oxymuriatic acid, which they suppose to consist of muriatic acid and oxygen, cannot be decomposed by any known means.

The most extraordinary fact noticed by Mr. Davy is, that when charcoal is ignited to whiteness by the voltaic battery in oxymuriatic acid gas, no change whatever is produced, provided that the charcoal has been previously freed from moisture or from hydrogen by intense heat.

The vivid combustion of many bodies in this gas has favoured the presumption that it contained oxygen very loosely combined and ready to exert its utmost power of affinity : but it is mere presumption ; since heat and light result also from the intense agency of any other combination, without the presence of oxygen.

The resemblance of oxymuriatic acid combined with metals to other neutral salts, may be considered a strong argument in favour

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